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## HISTORICAL FLOOD INFORMATION NEEDED

Many communities have historical records of significant events that have affected their area, such as visiting celebrities, anniversaries, and catastrophes. These records may be newspaper articles, photographs, diaries, or community records. This type of information concerning a community's flood history can be very useful. It can be used to help determine what conditions existed at the time of the flood, how long the flood lasted, and how deep the water was—high water marks may be identified from this information.

Local weather records and snowfall readings such as those made by the Soil Conservation Service snow survey teams could be useful, too.

Other public records that itemize expenditures for emergency flood relief or protection are part of the information needed to assess flood damage. DNRC's Floodplain Management Section and the Montana Disaster and Emergency Services officials would like to have this information to use in developing flood disaster response plans or flood damage reduction plans for communities with historical flooding problems.

When our staff visits communities enrolled in the floodplain management program they may investigate those communities' flood histories; local floodplain managers can help in locating records.

## IT WAS COLD IN DECEMBER

People over most of the United States were very concerned about the extremely frigid temperatures during the month of December. In Montana, many of us were anxious about heating our homes, about whether our cars and trucks would start in the morning, and what the effects would be on livestock. On top of all this, ice and flooding were a worry, too.

Many communities were alerted to the problem, but fortunately most were not flooded. However, other communities were not so lucky. The Floodplain Management Section was called many times for assistance and advice during the cold spell. Unfortunately, by the time the problems caused by extremely cold weather appear, there is little that can be done.

## ICE FLOODS

During the week of February 13, John Hamill attended a class sponsored by the University of Wisconsin on Ice Engineering for Rivers and Lakes. The class addressed ways to cope with buildup of ice in river channels. Ice engineering is a relatively new science with little es-

tablished technology; therefore, it is still in the experimental stage.

Several streams across Montana, such as Red Lodge Creek near Rockvale, Warm Springs Creek near Anaconda and the Beaverhead River near Twin Bridges caused flood damage after several weeks of sub-zero temperatures in December and early January. Most of the flooding problems resulted from accumulations of what is called frazile ice. Frazil ice forms when the water becomes chilled by very cold temperatures. The ice then clings to stationary ice or to rocks on the bottom. Once it is established, it can continue to build up until a thaw occurs. An extended cold spell such as the one we experienced this past winter allowed the ice to continue to accumulate until the stream channel was blocked. This forced water out of the banks and flooded several homes.

Flood stages during ice-caused flooding are often higher than they would be during a 100-year frequency free-flowing condition. This type of flood is very difficult to predict. When temperatures rise, frazile ice can break up and join other ice flows downstream.

Sometimes water overtops a layer of ice that has formed and then freezes. Layer upon layer of ice build up. This type of ice, called aufeis, is much harder and is more difficult to break up than frazile ice. It usually forms near constrictions such as bridges and culverts.

If an ice jam commonly occurs at the same location, that area can be monitored when the weather gets cold. As soon as frazile ice begins to form it should be broken up with a backhoe or other heavy machinery. Once it has established itself and is forcing water out of the channel it is much more difficult to control. By this time, sandbagging may be the only protection for houses.

## STORMWATER MANAGEMENT

Preliminary reports conducted by the National Flood Insurance Program (NFIP) indicate that over 70% of damage claims on flood insurance policies across the nation are in B and C zones. These zones are considered by the Federal Emergency Management Agency (FEMA) to be outside of 100-year floodplain boundaries. What causes this "unusual" situation to occur? It may be caused in part by lack of stormwater management practices, and by unwise choices of building sites.

When purchasing a house or looking for homesites, many people make their selections during warm, dry weather. They find what appears to be a choice location and begin building. Unfortunately, they may discover later that the site is not so dry. During rapid snowmelt or heavy thunderstorms, runoff waters may exceed the capacity of storm drain systems. Sometimes, a home may

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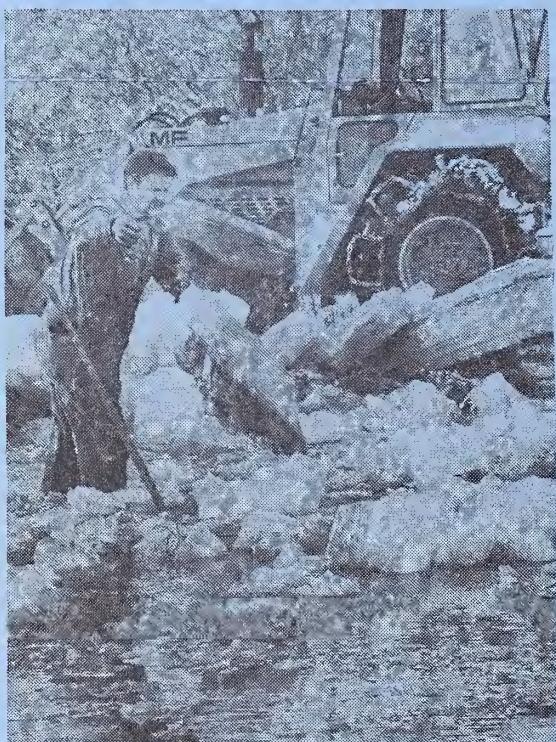


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be flood-free until new development occurs above it. More development causes more runoff because of the reduction in the absorption properties of the soil when streets, parking lots, and buildings replace natural ground. This is a problem that is occurring more and more in Montana, especially in our urban communities. It illustrates the need to consider stormwater management as well as floodplain management.

One of the provisions in the floodplain regulations addresses these problems—that is, to ensure adequate drainage. This solution includes careful planning so that a structure does not interfere with natural drainage patterns or increase runoff which can affect other structures.



This homeowner is attempting to clear ice along Rock Creek near Rockvale. Several miles of the stream froze during the sub zero temperatures in December.

**Remember—**Flood insurance coverage can only be purchased for property that is located within the jurisdiction of a community participating in the National Flood Insurance Program. Home owners should be aware of the following points:

- Flood insurance can be purchased for structural and content coverage whether the structure is located in or out of the floodplain
- There is a five-day waiting period before a newly purchased policy is in effect
- Flood insurance premiums are a lot less expensive than flood recovery costs

Communities participating in the NFIP can and should remind their citizens that flood insurance is available from local property and casualty agents. The purchase of flood insurance for financial protection year-round should always be encouraged for people residing in flood prone areas.

## FLOOD INSURANCE WORKSHOP FOR MONTANA AGENTS

The National Floodplain Insurance Program (NFIP) has contracted with Computer Sciences Corporation to handle NFIP insurance services. James Quinn, Regional Representative, is responsible for training and providing information to insurance agents in Montana concerning NFIP flood insurance. Mr. Quinn has scheduled five workshops to be held in Montana to train insurance agents to sell and service flood insurance policies. The dates and locations of these workshops are:

March 20	Holiday Inn South Billings	1 PM - 5 PM
June 20	Colonial Inn Helena	8 AM - 12 PM
June 21	Heritage Inn Great Falls	8 AM -12 PM
June 26	Outlaw Inn Kalispell	8 AM - 12 PM
June 27	Holiday Inn Bozeman	8 AM - 12 PM

For more information and registration forms, contact James Quinn at (303) 571-1364 or Computer Sciences Corporation, Suite 500, 718—17th St., Denver, Colorado 80202.

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